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draft

Responses to EPA Comments on BASF CMI for Lot 1102, Cranston RI dated September 8, 2017

GENERAL COMMENTS:

OK

1. It is not clear exactly what is being requested from EPA pertaining to the PCBs at the site. That is, the authority for the proposed PCB remedial work is not clearly specified. See specific comments below (e.g., #2, #10, etc).

Response: See responses to comments below under response to General Comment 2.

OK

2. Justification of proposed remedial plan focuses primarily on state requirements rather than federal TSCA requirements with respect to PCBs. Plan needs to be revised to explain how compliance with federal TSCA requirements is being achieved.

Response: The CMI will be changed to clarify that approval for a risk-based cleanup in accordance with 40 CFR 761.61(c) as detailed in Appendix C of the CMI WP, is being requested, in addition to meeting RIDEM requirements.

3. Historical information is discussed in general, but needs to be more fully integrated into this plan with respect to current site conditions, including previously submitted documents pertaining to calculation of PCB cleanup level for the site (i.e., 95th UCL calculations). Throughout this document there is reference to both 10 ppm and 25 ppm for the PCB cleanup standard. It is not clearly discussed as to the difference of what is currently proposed for PCB cleanup compared to what was originally proposed.

Outstanding

Response: The CMI will be modified and clarified accordingly, in red-lined and non-redlined new version of the CMI, which will however contain only text, and revised figures and tables, as EPA suggested. A Background section is being developed, and it will cover plan evolution from the SOB, to public comment, to EPA and DEM review.

SPECIFIC COMMENTS:

OK

1. Page 2. It is stated on page 2 that a separate CMI will be prepared for the groundwater remediation that will include ISCO. Thus, any EPA approval for this plan will only pertain to soil with exclusion of the groundwater. For the groundwater CMI, please ensure that it includes a discussion of other sites where ISCO has been used successfully to treat PCBs in groundwater.

Response: ISCO will be used to address VOCs in groundwater. PCBs in groundwater will be addressed by removing the source via excavation. References to the use of ISCO to address PCBs in groundwater will be removed from the CMI. A groundwater PCB monitoring plan will be added to the CMI, as requested. ISCO implementation will be addressed by the ISCO contractor in their separate Groundwater CMI Work Plan.

2. Page 3. **Final Remedial Activities**

OK

- a. The 1st bullet should be modified to clarify that the "engineered cap" would be installed over all areas where > 10 ppm but < 25 ppm PCB-contaminated soils remain.



Response: This change will be made.

- b. 1st bullet. It is not clear how the proposed cap, which would include 2-feet of clean soil with a "permeable geotextile layer" meets the requirements for an "engineered cap". Generally, EPA considers that such a cap should be impermeable. Is this term defined by RIDEM with this construct?

Response: Yes, RIDEM-compliant "engineered caps" include a 2-foot cover. See Section 12.4 C iv of the RIDEM Remediation Regulations. BASF added a puncture resistant permeable geotextile membrane as an added protection and per the request of EPA to support the HHRA. While these regulations don't specifically define what constitutes an "engineering cap", the capping options presented in the regulations are referred to as an engineering control and are therefore commonly referred to as "engineered caps" both by consultants and RIDEM. Note that as per the conference call on 11/3/2017 between EPA, DEM and BASF, as per DEM request and compromise agreement, to address the DEM impact to groundwater requirement for PCB in soil (Table 2 in Remediation Regulations, PCB less than or equal to 10 mg/kg), BASF will install an impermeable liner material over areas where PCB in soil remains above 10 mg/kg in areas where there is no concrete slab. This detail will be provided in the updated CMI.

- c. 2nd bullet. There is reference to the 2' clean soil cover or equivalent, as a RIDEM-approved soil cover. As indicated in General Comment 1, compliance with 40 CFR Part 761 would also be required. How/why does this soil cover meet the federal PCB requirements?

Response: These requirements are met by a combination of: 1) the removal of soils containing >25 ppm of PCBs, 2) the installation of the 2 foot clean soil cover to eliminate direct contact to soils with PCB concentrations < 10 ppm, 3) the installation of an engineered cap to eliminate direct contact to soils with PCB concentrations >10<25 ppm, (see part b above), and 4) the implementation of an ELUR on the property to restrict site use. In concert these engineered and institutional controls will achieve a level of acceptable risk under the risk-based cleanup approach in accordance with 40 CFR 761(c). BASF will delete the phrase "compliant with federal PCB requirements" or, "meeting TSCA cap requirements" and more simply state that a cover is being installed site-wide, which in combination with excavation of PCBs to < 25 ppm, will eliminate the risk to humans from direct contact of impacted soil and meet the requirements for an alternative TSCA risk-based closure cap under 40 CFR Part 761 (c).

- d. 4th bullet. It is not clear what "warning signage" requirements are referenced here for the federal PCB requirements. Depending upon PCB concentrations remaining at a site and the institutional controls, the PCB regulations do have specific "marking" requirements (see 761.61(a)(4)).

Response: No signage will be required under 761.61(a)(4) because the PCB levels remaining at the site will contain < 25 ppm PCBs. This statement on signage will be clarified.

3. Page 4. Groundwater. 2nd bullet. It is indicated that ISCO will be used to address all COC mobility, including dissolved-phase PCB impacts. There is inconsistency in this document as it

relates to why/how ISCO will be used. In later sections, it is indicated that ISCO will be used to treat VOCs in groundwater, not PCBs, and that outside of the TP-5, PCBs were not identified above regulatory standards in groundwater. (also see Comment 12).

Response: ISCO will be used to address VOCs in groundwater. PCBs in groundwater will be addressed by removing the source via excavation. References to the use of ISCO to address PCBs in groundwater will be removed from the CMI.

- OK 4. Page 8. **1995 IRM**. There is reference to 10 samples remaining following the excavation, where PCBs > 45 ppm remain. In reviewing the referenced figures, EPA was unable to distinguish exactly where these 10 samples were. These locations should be clearly identified here for ease of EPA reference and review.

Response: The 10 samples are located within the areas designated for excavation which are shown on the attached revised CMI Figure 4. This figure was also updated to include all 1995 IRM post-excavation PCB data through the present.

5. Page 8. **1995 IRM**. It is indicated that a "minimum 12-inch clean fill was constructed following soil removal. Given that multiple excavations were conducted, and the fact that these areas will require additional excavation to achieve the proposed < 25 ppm cleanup standard, the depth of removal in each of areas addressed in the 1995 IRM with the final depth of clean backfill should be provided for clarity.

OK *Response: The depth of removal in 1995 has been presented already in historical documentation attached to the CMI, but the depth of clean backfill is estimated at 1-2 feet as reported in the 1995 IRM documentation. No further definition is possible or seems necessary, since the entire area of the IRM excavation will be capped as part of the CMI. Areas within the 1995 IRM capped area which require additional excavation will remove the clean fill layer and dispose of these soils with the underlying PCB impacted soils.*

6. Page 8. **1996 GW Treatment System**. There is reference to groundwater MPS, but these are not clearly provided here. EPA found reference to certain MPS on pages 9 and 10, but PCBs were not included. Was an MPS developed for PCBs in groundwater and river sediments?

OK *Response: The reference is to RCRA MPS, not PCBs, since a MPS was not set for PCBs in groundwater. While this is the case, the remedial action proposed here is intended to eliminate PCB mobility in soil and groundwater. For the groundwater pathway we are using the conservative EPA MCL of 0.5 ug/L as a screening metric in addition to providing post-remedy groundwater monitoring to verify that the objective has been met.*

Sediment is not part of this CMI.

- OK 7. Page 9. 1st paragraph. What was the basis for the conclusion that air sparging and soil vapor extraction could not achieve compliance throughout the impacted aquifer volume? This should be included in this section.

Response: The reason is that anisotropy in soil stratigraphy lead to reduced vertical conductivity, causing the sparged air to disperse laterally rather than upward where it could be captured via vapor extraction. This statement will be added to this section.

8. Page 11. May 2017 Subsurface Investigation

- a. In the first paragraph it is stated that 6 test pits were completed in "clean" areas to observe subsurface conditions. Please define "clean".

Response: In this context, "clean" meant areas where PCBs were <10 ppm. This will be clarified in the revised CMI.

- b. During the test pitting program, underlying concrete and/or asphalt samples were not collected. This appears to represent a significant data gap for any PCB work going forward. While it is later indicated that the concrete/asphalt were not sampled because it was not included in the scope of work (Appendix A), given that some of the concrete showed "staining", if EPA had been contacted, we would have strongly recommended that samples be collected to support the current proposed work.

Response: The minor staining that was observed was in 2 locations where PCBs in soils are >50 ppm. Therefore, this concrete will be removed and disposed along with the >50 ppm soils. All concrete to be removed associated with PCB soil excavations will also be disposed with the soils. The only concrete that won't be handled as assumed PCB contaminated are the above grade pads associated with the former remediation system pumping well houses. These will be tested prior to either on-site reuse or off-site disposal. Therefore, for all other concrete, no sampling and analysis is needed.

9. Page 12. The 4th paragraph is incomplete as it ends with "Nature and Extent of Contamination".

Response: this phrase was meant to be the title of a new subsection. This will be revised.

10. Page 13. **Section 2.4.1 Remedial Objectives.** There is no discussion as to how the proposed remedial objective elements will meet the federal PCB requirements under 761.61. 40 CFR 761.61(a)(7) specifies the cap design for in-place disposal of PCBs > 1 ppm. Both caps as described likely do not meet those requirements. Thus, EPA would need to consider these alternative caps under 761.61(c). EPA requirements and how compliance will be achieved should be clearly discussed in this document.

Response: See Response to Specific Comments 2b and c to address regulatory basis clarity. It is noted that EPA has previously verbally approved the use of a risk-based approach. The use of this approach is noted in the CMI on page 12 and in a Technical Memorandum submitted to EPA on July 13, 2017 (also included in Appendix A of the CMI). This approach is also outlined in Section 1.0. Overall, the basis for remediation remained similar to the 2016 CMS and EPA's Draft Statement of Basis (SOB) (excavation of soil and groundwater treatment using ISCO), however, BASF proposed to utilize a TSCA risk-based approach, as allowed under 40 CFR 761.61(c), to address PCB-impacted soil contamination.

11. Page 14. For soil, the term "shallow" is used inconsistently, as it has been used to apply to both less than and greater than 2-feet bgs soils. For Section 2.4.2., 3rd paragraph, it is thus not clear what is meant by "shallow" soils. For example, if PCB concentrations are at 15 ppm at 5 feet, but at 5 ppm from 1 to 4 feet, it is unclear what type of cap would be constructed. Clarification is requested.

OK
Response: The use of the term "shallow" was meant to address all soils on the site with PCBs, regardless of depth. This will be clarified in this section. The type of cap to be constructed has been stated under Response to Specific Comments 2b and c.

12. Page 14. In Section 2.4.3, it is indicated that ISCO would be used to reduce VOC concentrations in groundwater. However, it had previously been indicated that ISCO would also be used to treat PCBs.

OK
Response: As previously mentioned, the treatment of PCBs in groundwater will be source removal via excavation. All references to treatment of PCBs in groundwater via ISCO will be removed.

13. Page 16. 1st full paragraph. It is indicated that an engineered cap will be placed over impacted soil with PCBs < 25 ppm. This statement is inconsistent with previous text indicating that the engineered cap would be placed over PCBs with > 10 ppm.

Response: The text will be revised to indicate that the engineered cap/closure cover will be placed over soils with PCBs >10 and. < 25 ppm

14. Page 16. **Section 3.2.1.2 Removal of Shallow PCB-Impacted Soil.**

- a. EPA does not understand why there is a distinction between Soil Type 2B and 2C in terms of off-site disposal since both require off-site disposal in a TSCA-permitted disposal facility or a RCRA hazardous waste landfill (see 761.61(a)(5)(i)(B)(2)(iii)).

Response: Soil Type 2C was created based on discussion with the US Ecology disposal facility who indicated they cannot accept >100 ppm PCB soils; but this was probably meant to only apply to soils also classified as a hazardous waste due to VOCs. However, in reality this category may not be used, depending on the selection of the disposal contractor.

- b. For purposes of segregation and off-site disposal (Soil Types 1C and 2A as compared to Soil Types 2B and 2C, based on the information provided, EPA cannot determine if sufficient data exists to support segregation and off-site disposal of < 50 ppm PCB-contaminated wastes to a state-permitted landfill. It is also not clear if a different disposal is proposed, but if so, the proposed excavation plan will need to be clearly defined and reviewed by EPA for a determination on the adequacy of the data for disposal purposes.

Response: Each cell designated for excavation on Figure C-4 in Appendix E clearly defines the soil types for each cell. These designations are based on the highest concentrations detected in each cell, regardless of sample depth. There will be no attempt to segregate individual layers of soil in any of the cell excavations based on PCB concentrations, all soils in each designated cell will be disposed as

the same soil type based on the in-situ soil analyses already completed in each cell and accepted as adequate for delineation.

OK
Soil Types 1B and 1C applies only to the area of the floodway zone and a small area adjacent to the floodway zone at the southeast corner of the Site. The sequence of excavation is currently envisioned as follows: areas in and adjacent to the floodway where >50 ppm PCB soils are located will be excavated first and delineated to <25 ppm prior to the excavation of 1B, 1C and 2A soils. The 1B category was created to allow possible reuse as backfill for excavation areas that are outside the floodway and that will be capped. Type 1C soils which will be disposed off-site, will be excavated prior to 1B soils. In areas outside the floodway this same procedure will be used. EPA will be afforded the opportunity to review the selected contractor's Excavation Plan and supporting analytical data prior to implementation.

15. Page 17. As previously indicated in Comment 5, above, it is unclear how the 1 to 2 feet of "clean" soil can be distinguished from soil that may be contaminated. If soil is in direct contact with contaminated soil, it would be considered to be contaminated unless it can be proven otherwise. The contract drawings that were cited in the 4th paragraph to clarify how this segregation as discussed in this paragraph is supported and can be achieved were not found.

Response: Areas designated for excavation due to the presence of underlying soils with >25 ppm PCBs will be removed and disposed with those PCB soils prior to the removal of the remainder of the clean soil layer. The remaining clean soil will be assumed contaminated and will be placed under the engineered soil cap. The text and plans will be revised to clarify this.
under

> 10 ppm

16. Page 18. Section 3.2.1.4.

- a. It appears to indicate that the concrete slabs and/or other debris will be removed if it limits access to PCB-contaminated soil. If the concrete and/or asphalt has PCB concentrations > than the soil PCB cleanup standard, it would need to be removed. In addition, the sampling must be conducted in-situ, not following removal and size consolidation. As written, the proposed plan for the concrete and asphalt cannot be approved.

Response: Correct, concrete and/or asphalt covering PCB-contaminated soils which will be excavated will be assumed to have the same PCB concentrations as the underlying highest PCB concentrations in soils and will be removed and disposed along with the soils.

- b. For re-use of concrete, an explanation of the 1-foot below the final grade location for crushed concrete is needed. If the concrete contains > 1 ppm PCBs, the 1-foot below final grade does not make sense and would be inconsistent with the requirements for PCB-contaminated soil.

OK
Response: The 1-foot below final grade is in reference to final grade after backfill of the excavations, not final grade after cap installation, which provides two feet of soil above this. This section will be revised to clarify this.

- ok
- c. With respect to recycling of metal, if the metal is located within a contaminated area, the metal must be decontaminated for recycling unless it is to be disposed in accordance with 40 CFR Part 761. Thus, if recycling is to be an option, a decontamination provision must be incorporated into this plan.

Response: The plan will be revised to include this requirement.

17. Page 18. **Section 3.2.1.5.** If water contains > 0.5 ppb PCBs, it would be regulated for disposal under 40 CFR Part 761. Please provide documentation to support that Tradebe is able to transport and manage such waste to its Stoughton facility. EPA also requests clarification on how the PCB-contaminated water would be disposed of if PCB concentrations are > 0.5 ppb.

Response: Tradebe is not permitted to dispose of water which contains >0.5 ppb of PCBs. Upon further discussions with Tradebe, they informed us they are not permitted to accept any water from this site regardless of PCB concentration. Therefore, the water will be transported to Model City, NY for treatment/disposal.

Can MC accept lay. vol. of H2O?

18. Page 19. **Section 3.2.1.6.**

- ok
- a. For PCBs, the stockpiling requirements under 761.65(c)(9) would apply. As written, it is unclear if these requirements would be met.

Response: BASF believes the stockpiling requirements per 761.65(c)(9) have been substantially met. It will be clarified how the requirement to address run-on which may result from a 25-year storm event will be met.

- ok
- b. Please define what is meant by "non-hazardous PCB containing soils".

Response: Non-hazardous PCB containing soils refer to those soils that do not contain a RCRA-listed VOC.

- ok
- c. 2nd paragraph. The first sentence states in part "... are expected to be shipped via truck to a licensed off-Site disposal facility, as detailed above.". There is no discussion in the previous paragraph regarding shipment to a disposal facility. Please clarify what section this refers to.

Response: This is meant to refer to Section 3.2.1.2, and that reference will be added.

- d. 2nd vs 3rd paragraph. Disposal of soil with PCBs is confusing. On page 17, it was indicated that PCB-contaminated soil removed from the Site would be disposed at Emelle or US Ecology. As written, these 2 paragraphs imply otherwise. Please clarify.

Response: These disposal facilities are presented as potential options. It is important to understand that some TSCA-approved facilities are not able to accept some PCB soils that are also classified as RCRA hazardous waste. The actual facilities to be utilized will be based on the evaluation of the technical and commercial (cost) bids submitted by the selected contractor for this site. Final EPA approval for the selected disposal facilities will be sought after contractor selection has been completed.

19. Page 19. **Section 3.2.1.7.** It is stated in the first paragraph "The points of compliance for soils will be defined at the extent of each excavation area." Please clarify what this means. (e.g., will post-excavation samples be collected both within (sidewalls and bottom) and along the perimeter of the excavation, etc?)

*Need comp. study
for segregation
& removal
on 10 ppm to
Table 4-1,
App. F.*

Response: Yes, the post-excavation samples will be collected from both sidewalls and bottom along the perimeters of the excavation cells. See Section 4.1 and Table 4-1 of Appendix F (Sampling and Analysis Plan), reference to which will be made in the text.

20. Page 20.

- a. 2nd bullet. Field screening may be used to provide qualitative information about PCB concentrations, but it may not be used for waste segregation or for determining if a PCB cleanup standard has been achieved. Fixed lab analysis would be required for both of these defined activities.

on to study

Response: Field screening will not be used for waste segregation, as explained in response to comment #14b above. During excavation, all 847 planned soil samples will be field screened with 20% (169) of the samples submitted for lab verification. AEI believes that field screening results with 20% lab verification to achieve compliance with the <10 ppm MPS is adequate to show compliance since the selected screening method can provide reliable and accurate results at this concentration (MDL is 2 ppm). A correlation study using field and off-site laboratory analyses on 25 duplicate samples with expected concentrations in the range of 1 to 1,000+ mg/kg is underway and the results of that study should be issued to EPA the week of November 13 for its review and concurrence. Also, for the Floodway Zone, all 207 planned soil samples from the final extent of excavation where the cleanup level is 1 ppm will be submitted for verification via EPA Method 8082/3540C.

- b. 3rd bullet. While the proposed PCB soil removal standard is 25 ppm, there is also a 10 ppm PCB cleanup standard to be achieved based on the 95% UCL. This is not clear in this bullet and thus is misleading to the reader.

Response: This will be clarified. Specifically, we will show that the soil remedy will result in a site-wide average PCB concentration based on the 95% UCL that is below 10 ppm.

21. Page 20. 1st paragraph. Please see Comment 19 pertaining to sidewall sampling for PCBs.

OK *Response:* This will be clarified to explain that post-excavation samples will be collected from both sidewalls and bottom along the perimeters of the excavation cells.

22. Page 20. **Section 3.2.1.8.** Please provide PCB data referenced in this paragraph for the stockpiled soil and the excess grading material that will be used as backfill. This PCB data should represent in situ PCB concentrations prior to stockpiling and/or soil grading to support PCB concentrations are < 10 ppm.

*stockpile
volume
200-300 yd³*

in-situ prior to stockpiling??

Response: The PCB data for the stockpiled soil from Lots 1108 and 2630 is attached, and will be referenced in the revised text and attached to the revised CMI Plan.

need to cover under part. 761.61(c) approval, 761.61(c)

what remains on lot 2630?

23. Page 21. 1st incomplete paragraph starting on page 20. It is indicated that soil with > 1 ppm PCBs will be removed within the FEMA floodway. Excavation of certain locations in the Floodway is shown on Figure 21. However, there appear to be data gaps (i.e., no samples collected) in a large portion of this area. Based on this, how was it determined that if the identified areas were removed that this would result in PCB concentration < 1 ppm across the floodway?

Response: The area in question was addressed in the Sampling and Analysis Plan (Appendix F) which shows the proposed locations of seven borings on Figure F-1 (B-896 thru 892) which will be sampled from 0-2 ft bgs for PCBs, SVOCs, pesticides, metals and cyanide, as shown on Tables 4-1 and 5-1.

This will be added to the CMI under section 3.2.1.7. Perhaps should consider also 2-4' based on Fig. 4.

24. Page 21. 2nd complete paragraph. Has FEMA approved the floodway plan?

Response: FEMA approval is still pending. However, BASF has utilized FEMA modelling protocols in demonstrating that negligible (less than 0.01 foot) increase in flood height to the entire watershed will occur, and therefore expects FEMA concurrence.

25. Page 22. Section 3.2.4.1. The saturation zone is at approximately 6 ftbgs. How deep into the saturation zone will the mixing occur?

Response: Mixing will occur as deep as practical with the available equipment, but not less than 2 feet into the saturated zone. This will be added to this section.

26. Page 23. Section 3.2.4.2. The schedule (Table 2) indicates that the pilot will run several months. How will the pilot success be measured? Is there a contingency in the event the pilot test criteria are not met? There is also reference to "dissolved-phase PCBs". If PCBs are present at > 0.5 ppb (regulated under 40 CFR Part 761), EPA approval of the ISCO treatment for PCBs would also be required. Are PCBs present in the dissolved phase at concentrations > 0.5 ppb? Also see Specific Comment 3.

Response: The most recent groundwater analytical data indicates that PCB concentrations > 0.5 ppb (the EPA MCL) were only observed in one location at shallow and intermediate wells MP-3S and MP-3I. PCBs in groundwater will be addressed by removing the source via excavation. References to the use of ISCO to address PCBs in groundwater will be removed from the CMI.

27. Page 25. Is there any plan to provide notice to the community of this current proposed work?

Response: Yes. For the IRM, a draft of the proposed notice to the public, including abutters, will be provided. In advance of the final cap installation, a public availability session will be scheduled.

28. Page 31. Will monitoring wells located within excavation areas be replaced?

only val. by EPA

Not by EPA as proposed remedy already vetted. Nothing identified specific to PCB cleanup standards proposed.

OK
Response: Monitoring wells which have been identified as needed for continued monitoring have been identified and will be protected during the excavation process. The list of 47 wells that will be retained is presented on Drawing C-1 in Appendix E.

29. Page 31. 2nd paragraph. As previously indicated, concrete will need to be sampled in situ if there are concerns about PCB contamination. With respect to the "minimum of 3 concrete samples", it is unclear what this means and at what point more than 3 samples would be collected. There is no discussion of asphalt which was previously mentioned. There is no mention of sampling of metals that would be encountered during soil excavations.

OK
Response: This section will be modified to be consistent with our response to question 16 a. Asphalt covering PCB-contaminated soils which will be excavated will be assumed to have the same PCB concentrations as the underlying highest PCB concentrations in soils and will be removed and disposed along with the soils. This section will also be updated to include the sampling and analysis of metals as needed to support disposal facility pre-acceptance criteria. The concrete sampling refers to only the three recently installed above grade pads associated with the former groundwater treatment system.

30. Page 31. 4th paragraph. Technical Spec 31 70 00 Requirements for Imported Soil does not include PCB sampling. Please explain.

OK
Response: This specification was based on RIDEM requirements for imported soil analyses, which does not include PCB analysis. PCB analysis will be added to this specification.

31. Page 31. **Section 4.5.4.** As previously indicated, PCB-contaminated soil for off-site disposal was to go to Emelle or US Ecology. In this section, it appears to indicate that contaminated materials may be segregated for disposal.

now →
Response: Yes, soils will be segregated in accordance with the in-situ PCB concentrations identified as the maximum PCB concentration detected in each cell, as explained in response to comment #14b. Individual cells that have soils with <50 ppm PCBs which are isolated from soils >50 ppm will be segregated for disposal. The proposed disposal facilities are tentatively identified as follows: for <50 ppm soils: RI Resource Recovery Landfill in Johnston, RI and the proposal disposal facility for >50 ppm soils is the Waste Management facility in Emelle, Alabama. permit waiver <50ppm waste? PCB

32. Page 32. **Section 4.6.** Last paragraph. For the ISCO, there is only reference to VOC analysis, not PCBs. As such, if ISCO is not needed for PCBs, this should be clarified throughout document. Otherwise, PCB analysis of groundwater would be required for ISCO closeout.

OK
Response: BASF does not believe ISCO is needed for PCBs. References to the use of ISCO to address PCBs in groundwater will be removed from the CMI. After excavation, PCBs in groundwater will be monitored in at least a semi-annual basis until PCB levels are demonstrated to achieve the 0.5 ppb cleanup level.

33. Page 33. It is indicated that the sand cap will be sampled for PCBs. It is not clear to the TSCA Program, what levels of PCBs were "capped" in the river, nor that the proposed criteria of 1 ppm is appropriate for determining PCBs are not permeating the cap?

Response: This sediment monitoring plan was added to this CMI Plan only to be consistent with EPA's Draft Statement of Basis (SOB). However, sediment is not part of this soil media closure plan request. It is noted that a Public Health Risk Evaluation determined that sediment was not significantly impacted after completion of the voluntary sediment excavation, which was implemented based on visual evidence of contamination. The 1 ppm criterion was presented in the CMS and used in the Draft SOB for the Site as a cap effectiveness screening value. The SOB text follows:

Given the historic remedial measures completed for sediment at the Site, a long-term periodic monitoring program will be implemented to ensure the existing sand cap remains intact and protective. Monitoring frequency is initially proposed to occur at the first 5 year review (2021) and after major flood events between now and that time. A major flooding event is defined by the National Oceanic and Atmospheric Administration (NOAA) as a Pawtuxet River stage that exceeds 13 feet MSL at the US Geological Service (USGS) gage station 01116500. Under the monitoring plan the sand cap will be sampled for PCB content to ensure that any remaining PCBs sequestered below the cap are not permeating through the cap. If PCBs exceed 1 ppm in any sample, additional investigation will be conducted to determine the source of the detections and appropriate remedial measures necessary to ensure protectiveness, if any. A detailed monitoring and sampling plan will be developed following this outline. At the time of the 5 year review, based on the available data, a decision will be made, by EPA, as to the permanence of the remedy and any future monitoring requirements.

OK
It is further noted that the completion of an assessment of the sediment cap in 2011, after the major flood event in 2010, indicated: "the clean sand cap on top of the witness barrier (approximately 1-foot thick with variations in thickness at different sampling locations) remains present at all 12 locations sampled, indicating that the sand cap is essentially the same thickness as when it was installed over 15 years ago and that it is performing as intended." The concentrations of PCBs detected in the sand cap samples in 2011 were all less than 0.37 mg/kg total PCBs.

34. Figure 21. The title of this figure is "Alternative Remedial Approval (PCB Removal > 25 ppm). However, this figure also shows excavation in the floodway which is removal of PCBs > 1 ppm.

Response: This figure title will be modified to exclude the "(PCB Removal > 25 ppm)" phrase.

35. Appendix A.

- a. Please clarify if Figure 1 represents all identified PCB concentrations currently present on Lot 1102. Is there a single data table with all of these results, including the test pits results?

Response: Figure 1 only includes data presented up through the 2016 Corrective Measures Study. A single data table was not prepared with all of the results. Data tables were included in separate reports (i.e. RFI, IRM, SRI, CMS). All PCB soil data tables are attached. However, Figure 21 in Appendix C shows current site conditions based upon both the SRI/IRM and recent AEI data (TP-5). Figure 1 will be updated to be consistent with Figure 21.

- b. It was indicated in the CMI that PCB concentrations up to 118000 ppm were identified in the TP-5 area. Figure 1 does not show this same information.

Response: Figure 1 in Appendix will be modified to include this data.

- OK
 c. During the test pit sampling, EPA is unclear on how soil was segregated for either placement back into the test pit or for disposal. For example, in the TP-5 area, PCB concentrations were well over 100,000 ppm and previous data showed well below that. Thus, if the segregation was based on prior data, it appears that PCB concentrations over 50 ppm could have been placed back into the test pit. Is this correct?

Response: That is incorrect. TP-5 as shown on Figure 1 indicates soils contained > 50 ppm PCBs, so they were not used as backfill material. In the case of TP-5 and other test pits where >50 ppm PCBs had been detected, all soil excavated from the test pits were stockpiled and covered on-site awaiting disposal during the upcoming remedial measure.

- d. As previously indicated, EPA would have recommended that concrete and/or other underlying material be sampled for PCBs if encountered during the test pitting as this appears to represent a substantive data gap for implementation of this proposed plan.

OK
 Response: Encountered concrete and other debris found in excavations are being disposed of with the TSCA PCB soil waste stream, therefore no data gap exists.

36. Appendix B.

- a. page 3. For the groundwater, it indicated that AEI believes the PCB contamination in the groundwater is co-located with higher PCB contamination soil in part due to non-detect of PCBs in MW-31S and 31D. PCB congeners (not Aroclors) were present in MW-2S at 0.14 ppb, which could potentially be attributable to higher PCB concentrations in the TP-5 area, but this was not noted in this discussion nor is it clear that the area surrounding MW-2S will be excavated. Thus, sampling of wells remaining (post-excavation) for PCB congeners may be necessary to confirm if the soil excavation reduced PCB concentrations in groundwater.

OK
 Response: The area around MW-2S and the TP-5 area is indicated for excavation on the Contract Drawings, Appendix E; this will be referenced more clearly in the CMI text (see Section 2.5.2). Post-excavation groundwater sampling will be identified in the CMI, to include sampling of the above referenced wells for PCBs, and is anticipated to be undertaken at least semi-annually for two years after completion of soil removal in the above areas. (See Section 3.2.4)

- b. Are the references for 2016(a) versus 2016(b) reversed? See pages 9-10 of the plan.

Response: Appendix B references are separate from the CMI WP references. Therefore, the order of 2016a and 2016b references are correctly displayed in each document.

37. Appendix C.

- a. Page 1. Soil Item 1. As previously discussed, BASF has indicated that removal of > 25 ppm PCB-contaminated soil will result in a 95% UCL of 10 ppm. As written, this line item does not indicate this, but rather infers the "cleanup standard" is 25 ppm PCBs.

Response: The document discusses why a risk-based cleanup standard of 25 ppm PCBs is appropriate and should be approved by EPA. The proposed target cleanup level, as to be measured in the field is proposed as < and equal to 25 ppm, with the post-remediation metric that the 95% UCL is <10 ppm. However, due to the request of RIDEM to address their GB Leachability Criteria of 10 mg/kg for PCBs, the CMI has been changed to include removal of soils in designated excavation areas to achieve <10 mg/kg, where possible, and to provide impermeable liners to cover those areas where this can't be achieved, or there is no concrete pad covering areas not designated for excavation where the PCB concentrations are currently <25 mg/kg.

- b. Page 1. BASF has not adequately captured what would happen if PCB concentrations in the underlying concrete are > 25 ppm or even > 10 ppm.

Response: The underlying concrete will be removed and disposed with the >25 ppm PCB soils regardless of the concentrations in the concrete. Concrete covering soil with PCBs less than 25 ppm will remain in place and will be capped as appropriate. What does this mean?

- c. Page 1. Item 2. There was no mention in the plan about use of an HDPE.

Response: HDPE is an impermeable membrane and was not envisioned to be included in the cap. However, due to the recent request of RIDEM to include an impermeable liner over the areas where <10 ppm PCBs are not be achieved and there is no concrete slab present, to address BASF proposes to install 40 mil thickness HDPE liner sections over those excavations.

- d. Page 2. References at bottom. Please confirm 2016(a) and 2016(b) are correct.

Response: Yes, correct.

- e. Figures 3B thru 3D. Please clarify what the "red" dots represent.

Response: The "red" dots are groundwater grab sample locations (not repeatable).

- f. Figures.

- i. Figures 9-12. Certain sample locations are shown in green, while others are shown in either white or yellow. Please clearly clarify what these colors represent. EPA assumes that some of these points were excavated based on the data tables. If so, this should be clearly designate on each figures.

Response: Color coding is explained on the bottom of some of these figures. The yellow and green colors represent samples that contained PCBs >50 ppm. AEI utilized the collective figures (Figures 9-12 and 13-14) to prepare Figure 21, which shows current site conditions based upon both the SRI/IRM and recent AEI data (TP-5).

- ii. All figures need to be reviewed for accuracy and consistency. For example, along the western boundary, PCB concentrations > 50 ppm appear to be shown on Figures 13 and 14, but not on Figure 21 or on Figures 9-12; and, Figure 14 does not show PCB concentrations > 50 ppm in the TP-5 area. Similar issues were noted for sample locations M60 and G280. Thus, it is not clear what current site data is and/or what figures are accurate based on the information presented.

Response: AEI has already completed a review of all figures for accuracy and consistency. Figures 13 and 14 were prepared for the 2016 CMS and did not indicate which samples had been excavated based upon the IRM (Figures 9-12). The 50 ppm areas adjacent to Mill Street (western boundary) were excavated during the IRM (not indicated on the 2016 CMS figures).

AEI utilized the collective figures (Figures 9-12 and 13-14) to prepare Figure 21, which shows current site conditions based upon both the SRI/IRM and recent AEI data (TP-5 and TP-6). Figure 21 shows and labels the TP-5 location as greater than 50 ppm, G280 was updated to show TP-6 results at 2-4' bgs and the locations of samples >25 ppm from the IRM were added. The results for M60 on Figure 21 is consistent with the CMS figures. fig 13/14 ✓

38. **Appendix D.**

- a. **Page 1. Background.** It is indicated in paragraph 2 that the engineered cap would be placed where PCB concentrations > 25 ppm.

Response: The statement is incorrect. It should read where PCB concentrations > 10 ppm but < 25 ppm.

- b. **Section 2.1.2.** The discussion pertains only to construction of the caps in accordance with RIDEM and not federal requirements. The SMP must also comply with TSCA, not just RIDEM.

Response: As the CMI WP is being designed under the risk-based cleanup approach under TSCA, the document is requesting approval of the alternative capping from TSCA regulations (i.e., no impermeable layer, except for those RIDEM-required locations noted above). The SMP will be compliant with TSCA and RIDEM.

- c. **Page 5. Section 2.2.1, 1st and 2nd paragraphs.** It is indicated that capped/covered areas will include areas where PCBs concentrations in "surface" soil are > 1 ppm. Why just surface soil? The federal PCB regulations cover PCB concentrations at depth, not just surface, regardless of whether high or low occupancy. If PCBs > 1 ppm remain at depth, those PCBs will need to be addressed in this plan.

Response: The CMI WP has been designed to address direct exposure to soils with >1 ppm which will remain at depth, not just surface soils, and this will be made clear in the revised CMI text.

39. **Appendix E. Contract Specs.**

- a. 01-72-10-5. With respect to recycling and reuse, items listed could contain PCBs, especially if located at or below grade and/or in contact with soil. EPA assumes that this section was not intended to allow recycling of such materials without testing and/or decontamination.

OK
Response: Correct, this section is specified for only above ground structures which were installed post-building demolition (as part of groundwater remediation system) which are not in contact with PCB-contaminated soils.

- b. 02-30-10.

- i. Concrete located on the site and in contact with PCB-contaminated soil must be characterized in situ, not after crushing.

OK
Response: Characterization will be completed on in-situ concrete, but only for the former groundwater pump house building slabs, as noted above.

- ii. It is unclear what is meant by "average" contaminant concentration level for on-site reuse. The same requirements for soil would apply to concrete under 40 CFR part 761.

oh
Response: Agreed. RIDEM allows an average of the crushed concrete concentrations to be used for disposal/re-use management purposes. However, as stated above, concrete associated with PCB-impacted soils >25 ppm either above or below the original demolished building slabs will be managed under 40 CFR 761 as TSCA contaminated material and added to the soil disposal waste stream. The text will be clarified to reflect this.

- c. 02-30-80. See comment above regarding concrete. Any metal piping would also have to be tested and/or decontaminated prior to abandonment in place and/or recycling.

oh
Response: Understood. It is the intention that any material uncovered in the excavations would be added to the TSCA soil disposal waste stream, unless the selected contractor elects to decontaminate and send for recycling. A statement clarifying this will be added to the text. *include in approval.*

- d. 31-60-05.

- OK*
i. Page 1. Type 1A soils were not identified in the plan. As they are mentioned here, EPA would recommend inclusion within the plan. Further, it should also be clarified that PCB concentrations in such soil must be < 1 ppm.

Response: The PCB concentrations will be changed to < 1 ppm (this was a typo).

- ii. Page 2. Type 1B soils. There is inference that Type B soils may be blended with other type soils, which could include Type 1A soils. In this event, EPA would consider any concentration in the blended soil to be the highest PCB concentration that was blended. For example, if 9 ppm soil was mixed with < 1 ppm PCB soil resulting in a PCB concentration < 1 ppm, EPA would still consider the blended soil to contain 9 ppm PCBs.

Response: Understood. Soil blending is not expected for this project and if conducted will follow the logic presented in comment, as stated above previously. A statement to this effect will be added to the text.

- iii. Type 2A. There is no discussion in the plan about segregation of > 25 ppm but < 50 ppm PCB soil for off-site disposal. It is indicated in the plan that PCB-contaminated soil would be sent to either Emelle or US Ecology.

Response: Contract drawings, which show delineation of soil types for each excavation cell, which the contractor may segregate for disposal if approved by EPA, will be referenced in the text.

- iv. It is unclear how/why Type 2B and Type 2C soils are needed since these concentrations would ultimately end up at the same facility.

Response: One facility indicated they were not be able to handle under their permits RCRA hazardous waste with higher PCB concentrations (i.e., > 100 ppm PCBs). In addition, this designation was created to identify areas for the contractors where higher level of PPE and/or equipment decontamination may be required.

- v. Type 3 was not discussed in the plan. Any examples?

Response: Type 3 is hazardous soils, which is mentioned in the technical specifications (31 60 05 - 2). An example would include the soils from SWMU-11 which were impacted by a historical release of toluene. The toluene in soil is an EPA listed waste and therefore, the soil would be considered a hazardous waste, while also containing PCBs. This definition for Type 3 soils will be made in the text.

- vi. EPA will need to review the contractor's excavation plan if any segregation of soil is proposed either vertically or horizontally for on-site or off-site disposal/reuse.

Response: The only vertical segregation of soils planned is in the 7 ft deep excavation on the eastern side of the site where the top two feet of soil is also a RCRA hazardous waste. Segregation based on PCB concentrations vertically is not planned for any areas. Horizontal segregation will be accomplished in some areas where >50 ppm soils lie adjacent of <50 ppm soils by first excavating the >50 ppm soils until the extent has been verified and removed down to at least <25 ppm. The Contractor's plan will reflect the Contract Drawing D-4 Remedial Excavation Plan and this general approach. EPA will be afforded the opportunity to review and approve the selected Contractor's Excavation Plan prior to implementation.

- e. 31-60-40-5. Dry decontamination procedures are not consistent with requirements under 40 CFR 761.79(c). Further, given the high PCB concentrations to be excavated, EPA does not believe that dry decontamination procedures are best. However, if this is preferred by the contractor, EPA will require sampling to confirm PCB concentrations on equipment is below the decontamination standards specified in 761.79(b).

Response: Agreed, this specification will be modified. AEI does not anticipate approval of dry decontamination for certain areas of the site under any circumstances, such as TP-5 (equipment used

during the completion of this test pit was decontaminated with a solvent). The decontamination procedures proposed by the contractor will be reviewed and approved by BASF/AEI. If dry decontamination is implemented for any phase of the project, BASF will require wipe sampling to confirm equipment is below the decontamination standard specified in 761.79(b).

- ok f. 31-62-75. PCB stockpiling requirements as specified under 761.65(c)(9) would also apply if soils are stockpiled rather than live-loaded for off-site disposal.

Response: Understood, and a statement to this effect will be added to the text.

- g. 31-70-00-3. PCB sampling on soil imported for backfill is not proposed. Is this correct?

ok Response: No, it will include sampling for PCBs. The need for sampling and analysis of imported material has been included in the RFP and will be verified by BASF prior to allowing imported fill to arrive on site.

- h. 31-80-00.

- ok i. There is reference only to RIDEM GW Quality Rules, but not 40 CFR Part 761. Please confirm that the standard for PCBs under the RIDEM Rules is < 0.5 ppb.

Response: Yes, the RIDEM rules shows the PCB standard as < 0.5 ppb (Table 1). This will be added to the text.

- ii. Throughout this spec there is only discussion of dewatering with exception of Section 1.06, which refers to the dewatering and treatment system. Please clarify if on-site treatment would be acceptable is proposed by the contractor.

ok Response: No on-site treatment is expected since ground water is not envisioned to be encountered to any significant extent; where encountered, it will not be re-directed back into the ground, but rather sent off-site for disposal.

- ok iii. Page 6. Decon of field equipment will need to comply with 40 CFR 761.79, which include the dewatering system equipment.

Response: Understood, and a statement to this effect will be added to the text.

- ok i. 32-30-20. See previous comments above regarding compliance with 40 CFR 761.79 for decontamination of field equipment.

Response: See response to Specific Comment 38 h iii.

- ok j. Section 31 10 00 Earth Work. The page numbers do not correspond to the section number.

Response: The correction will be made.

40. Appendix G. The ELUR will need to also reference federal PCB regs/requirements. Currently it only refers to RIDEM.

Response: The ELUR is a placeholder for the final ELUR until remediation activities are completed and approved by EPA/RIDEM. At that time, the federal PCB regulations and requirements will be applied.

41. Appendix H.

- a. Page 1. 1st bullet. This information appears to be inconsistent with the information provided in section 3.2.2 on page 20-21 at the beginning of this CMI document

Response: The engineered barrier was intended to refer to the soil cap with permeable geotextile (i.e. areas with >10 ppm <25 ppm PCBs), while the "clean" soil cap refers to the RIDEM-approved soil cover only (i.e., areas with >1 <10 ppm PCBs). The text will be clarified.

- b. Page 1. Last paragraph. There is reference to a 2-foot soil cap. However, in the plan there is an indication that gravel may be used in lieu of soil.

Response: Use of 1 foot of gravel over the geotextile liner (instead of 2 feet of soil) is envisioned if FEMA does not approve raising the grade more than 1 foot above current grade within the Flood Zone AE. A Conditional Letter of Map Revisions (CLOMR) is being prepared to be sent to FEMA for their review and approval.

- c. Page 2. 7th paragraph. Any excess soil generated from the property must be disposed of based on existing concentrations, not concentrations in the accumulated roll off. This is not clearly stated.

Response: This will be more clearly stated in the text.

- d. Page 3. Any soil removed from the site must be < 1 ppm PCBs to be used off-site. There is no automatic allowance under 40 CFR Part 761 for reuse of soil with PCB concentrations > 1 ppm in any other manner without authorization from EPA under 761.61(c).

Response: See response above to Specific Comment 40 C.

- e. It is not clearly stated in this SMP that if soil is disturbed or excavated that the required clean cover would be re-established as specified in the approved remedial plan.

Response: The SGMP states: "At the completion of site work, all exposed soils are required to be recapped with Department approved engineered controls (2 ft of clean fill or equivalent: 4 inches of pavement/concrete underlain with 6 inches of clean fill, and/or 1 foot of clean fill underlain with a geotextile liner) consistent or better than the site surface conditions prior to the work that took place." This statement will be revised to require restoration of the 2 ft clean cover, not any other equivalent covers.

42. **Appendix J.** In reviewing the inspection form, it is not clearly shown if the inspector would look at the soil and/or gravel depth to ensure that the required 2-foot depth minimum (or other approved cover depth) remains in place.

Response: The text states that the cap will be evaluated by visually inspecting that the cap/cover have not been reduced to less than 2-feet, among other items. The form will be modified to require depth measurements as verified by field surveying.

43. **Appendix k.** The air monitoring limits appear to really reflect worker exposure limits. Given the proximity of this site to nearby residents, support of these levels for air monitoring criteria is required. See the table on page 18 of 26.

Response: BASF/AEI will conduct perimeter air monitoring to ensure dust/air quality is suitable for off-site residential receptors. A statement to this effect will be added to the text.

Air monitoring per criteria -